

## Quarterly Coordination Meeting

### **NYSDEC / USEPA Region 2 Northrop Grumman Systems Corporation NAVFAC**

**December 14, 2016**

# Northrop Grumman Discussion Topics

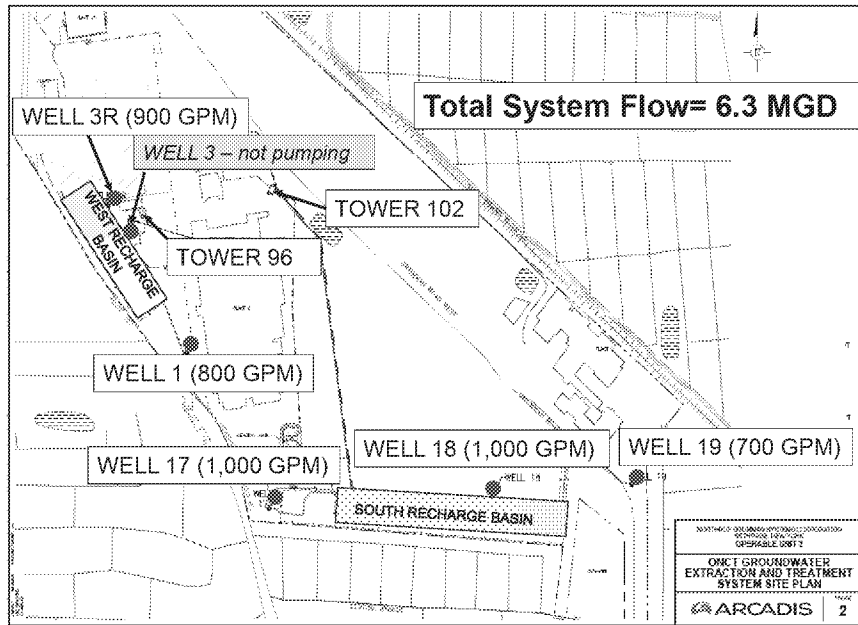
- Status of Northrop Grumman/Navy Cooperation
  - Technical Exchange Meeting was held on November 16, 2016
  - Navy Wells sampled by Northrop Grumman
- Update on Northrop Grumman OU2 Activities
  - ONCT System OM&M/Effectiveness
- Update on Northrop Grumman OU3 Activities
  - Off-Site RW-21 Project Area Groundwater Investigation/Remediation
  - Park Soils
  - Hydraulic Effectiveness Study
  - Residential Properties

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RE-117D1 and RE-117D2 wells were taken back by Navy for sampling in fourth quarter 2016 and until further notice

## Update on Northrop Grumman OU2 Activities

- ONCT System OM&M
- ONCT System Effectiveness



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# ONCT System OM&M

- Uptime & Performance for 3Q 2016

- T96 System: 99.5% uptime**

	<u>% Uptime</u>	<u>% Design Flow Volume</u>
• Well 1:	97	100
• Well 3R:	97	138

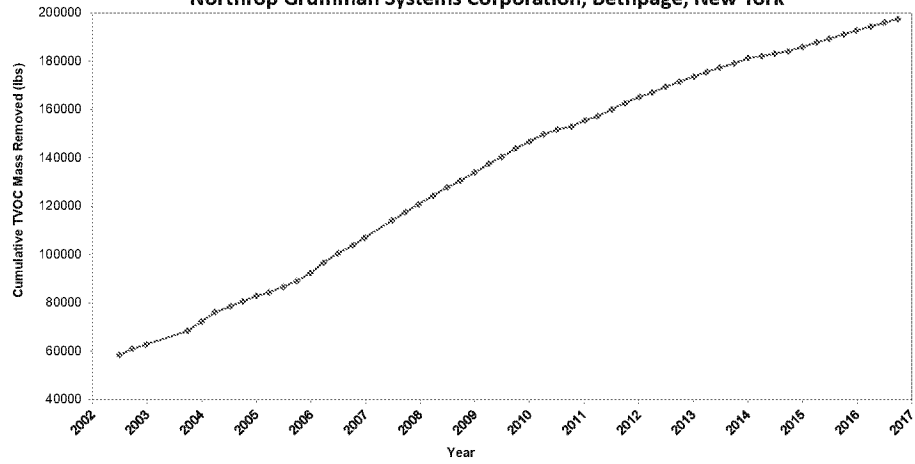
- T102 System: 99.9% uptime**

	<u>% Uptime</u>	<u>% Design Flow Volume</u>
• Well 17:	95	100
• Well 18:	94	157
• Well 19:	90	99

## ONCT System OM&M – cont'd

- Downtime due to alarm conditions, periodic system/well maintenance, and electrical and communications disruptions
  - Maintenance activities included: T96 blower repair and meter calibration, Well 19 VFD fan replacement
  - Repair of treated water distribution pipeline
  - Northrop Grumman has installed new communications system for more reliable and uninterrupted communications (August)
  - >99% treatment efficiency, discharge is compliant
- Cumulative Mass Removal
  - ~197,700 lbs VOCs removed from start up of ONCT System in 4Q 1998 through 3Q 2016

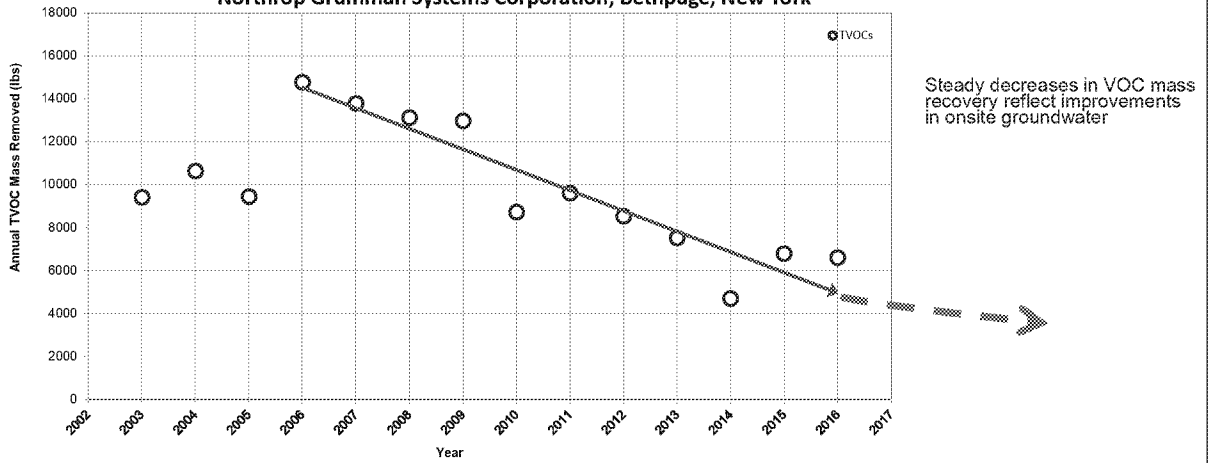
**Cumulative TVOC Mass Removed, On-Site Groundwater Remedial System,  
Northrop Grumman Systems Corporation, Bethpage, New York**



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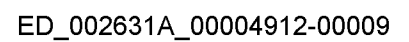
# VOC Mass Removal ONCT (OU2)

Annual TVOC Mass Removed, On-Site Groundwater Remedial System,  
Northrop Grumman Systems Corporation, Bethpage, New York



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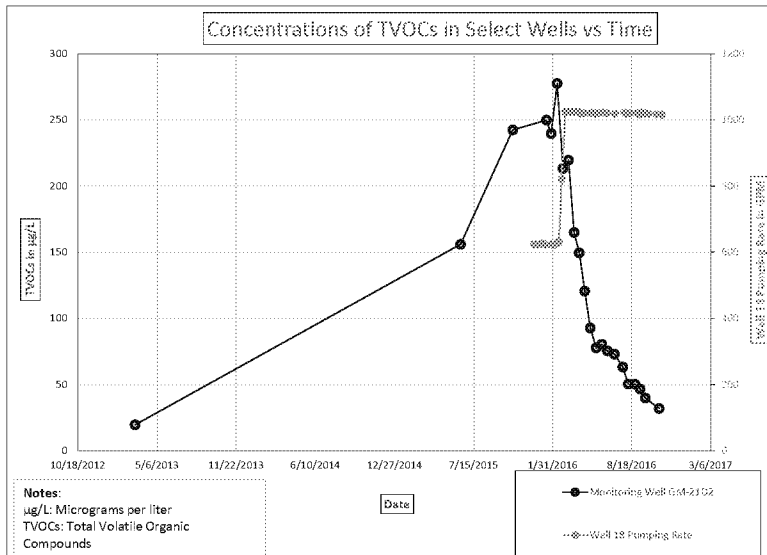




## GM-21D2 Study

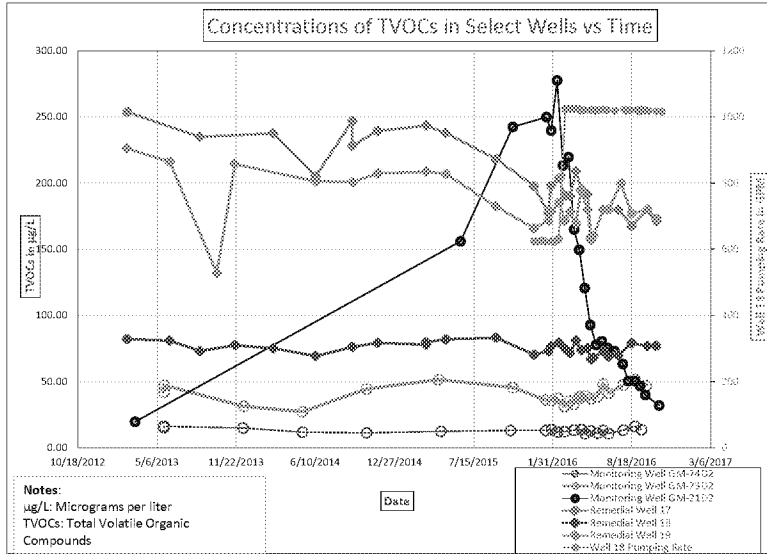
- Well GM-21D2 (January – October 2016)
  - GM-21D2 TVOCs continuing to decrease since February 2016
  - Since July 2016, rate of decline is less but still decreasing
  - Variability in GM-21D2 TVOCs inconsistent with nearby wells and is localized
  - GM-21D2 within ONCT capture zone
- Study results support continuing ONCT Effectiveness

# TVOC Trends in GM-21D2



- TVOCs in GM-21D2 continuing to decrease since February 2016
- Since June 2016, rate of TVOC decline is less but still decreasing

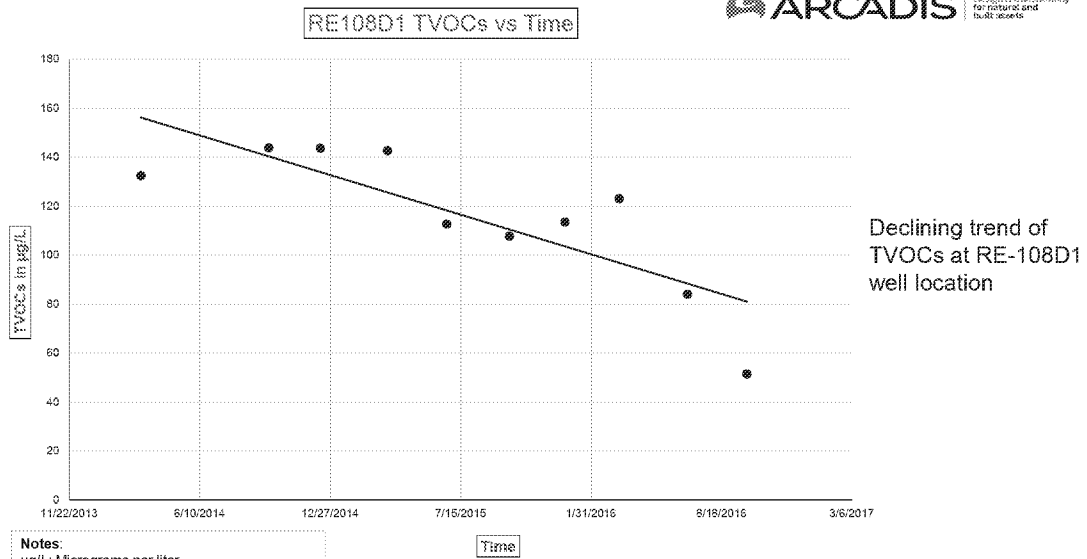
# TVOC Trends in GM-21D2/nearby wells



- TVOCs in GM-21D2 continuing to decrease since February 2016
- Since June 2016, rate of TVOC decline is less but still decreasing
- Water Quality Changes in GM-21D2 inconsistent with nearby wells and are localized
- GM-21D2 within ONCT capture zone

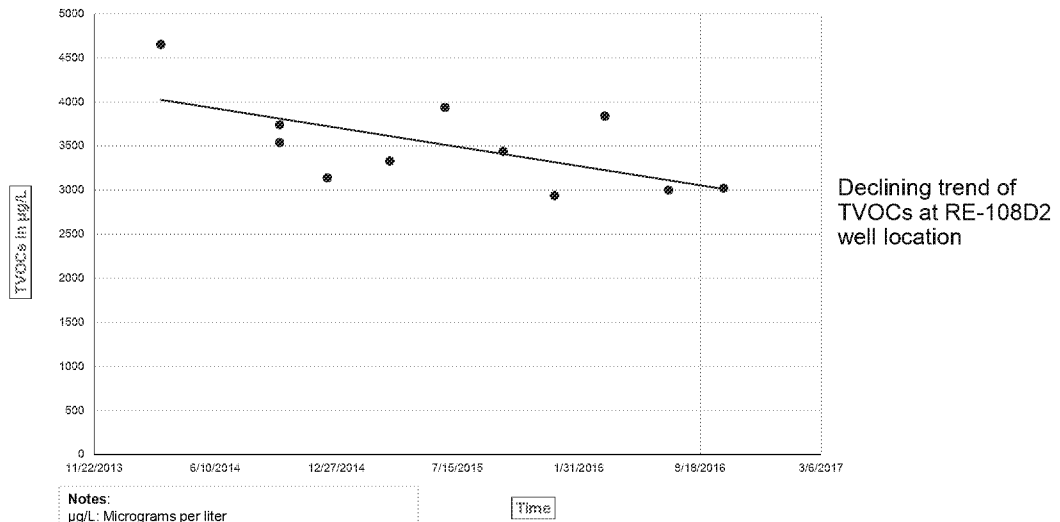
## GM-21D2 – Continued Monitoring

- Plan for continued monitoring following study
  - Changes in monitoring frequency:
    - Return to quarterly for Remedial Wells 17, 18, and 19
    - Return to semiannually for Monitoring Wells GM-73D2 and GM-74D2
    - Adjust GM-21D2 from biweekly to monthly
  - Well 18 flow rate maintained at 1000 gpm at this time



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# RE108D2 TVOCs vs Time



**Notes:**  
 µg/L: Micrograms per liter  
 TVOCs: Total Volatile Organic Compounds

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## Groundwater Monitoring

- Summary of TVOCs and 1,4-dioxane results for 2Q-2016 by Hydrogeologic Zone (73 wells sampled)

Range of TVOCs and 1,4-dioxane in samples collected in Second Quarter 2016		
Hydrogeologic Zone	Range of TVOCs (µg/L)	Range of 1,4-dioxane (µg/L)
Shallow	ND - 6.6	ND - 7.34
Intermediate	ND - 49.0	ND - 4.2
Deep	ND - 160	ND - 8.63
Deep 2	ND - 460	ND - 10.9
Deep 3	ND - 67.0	ND - 4.54

Q2 2016

Q2 2016 was an annual event



## Update on Northrop Grumman OU3 Activities

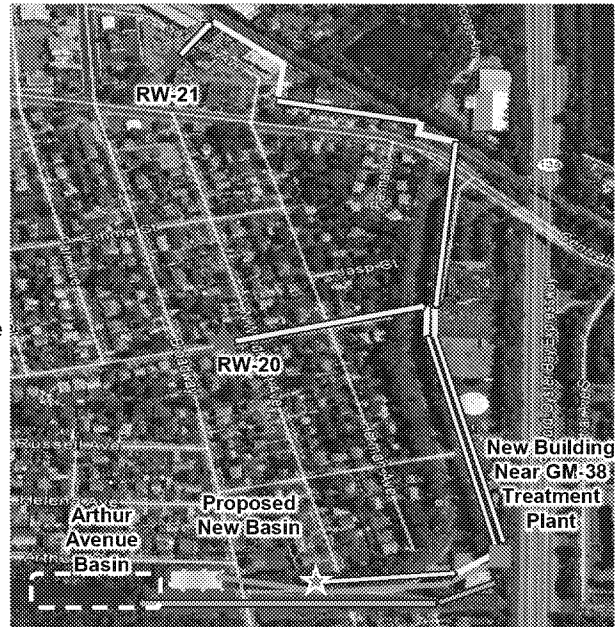
- Off-Site RW-21 Project Area
- OU-3 Activities (Park Soils)
- Other

# RW-21 Project Area Overview

- ★ NYSDEC- approved, TOB permitted well
- ★ NYSDEC-approved, TOB permit-pending well
- Proposed treatment building
- ← Proposed buried treated water line and flow direction
- ← Proposed buried water line and flow direction
- ← Existing Navy GM-38 buried treated water line and flow direction

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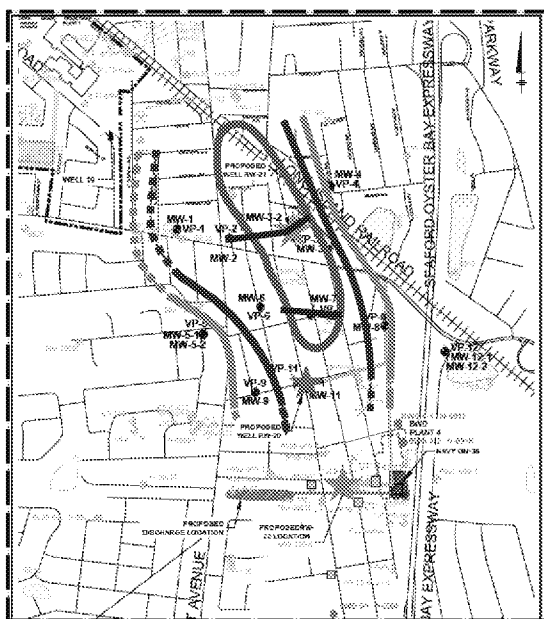






## Additional OU3 Activities (RW-21 Area Groundwater)

- Continue to communicate with residents and Town of Oyster Bay regarding upcoming work
- Remedial Well RW-20 approved by NYSDEC and waiting for TOB permit
- Remedial Well RW-21 installed and developed
- Remedial Well RW-22 installed and being developed
- VPBs 13, 14, 15 and 16 drilled/sampled
- MW 13, 14, 15 and 16 installed and sampled

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## RW-21 Project Area

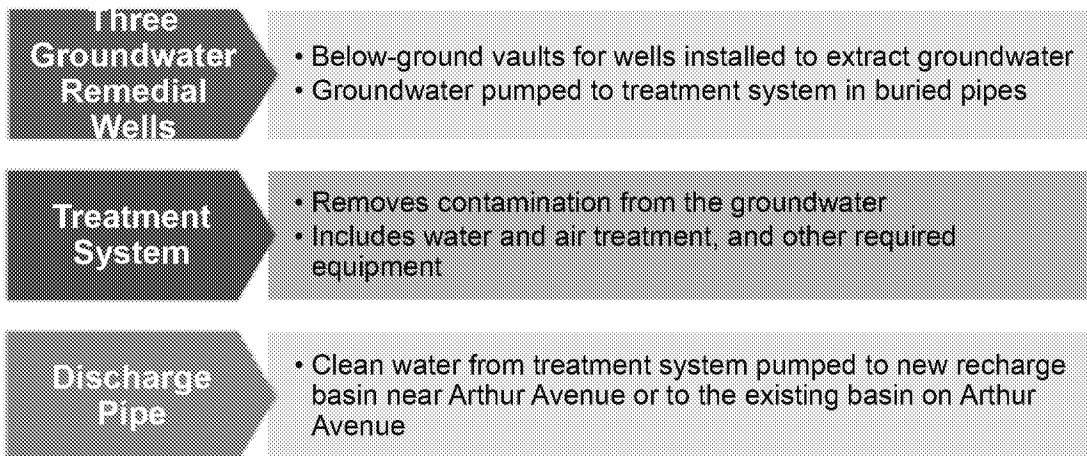


-  Width of Area of Highest VOC Mass Discharge  
 Proposed Remedial Well  
 Approved Remedial Well  
 Approved Boring/Monitoring Well

**Plume Contours, ug/L**

-----	500
-----	1,000
-----	5,000

## Key Elements of the Cleanup System



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## Additional OU3 Activities (Park Soils)

- Specifications for VOC soil remediation being prepared
- Upcoming Submittal: PCB/Metals Remedial Design Work Plan
- Northrop Grumman and EPA met second quarter and third quarter 2016 to review PCB soil remedy

## Additional OU3 Activities

- Hydraulic Effectiveness Study
  - Inspected two offsite wells, plan to abandon and replace
  - Drill additional VPBs and MWs as a follow up to first phase
- Residential Properties